

Cubase 5 VST Instruments



Cubase • SX/SL



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Introduction

This document contains descriptions for the VST Instruments which can be found in the Cubase 5 Instruments subfolder of your VST plugins if you chose to install any of these during the Cubase SX/SL installation.

- JX16 - a software synthesizer.
See [page 4](#).
- CS40 - a software synthesizer.
See [page 14](#).
- Neon - a software synthesizer.
See [page 16](#).
- LM-9 - a drum machine.
See [page 18](#).

Mac OS X disclaimer

Mac users should be aware of the fact that although these instruments have been updated to function under OS X, they have not been thoroughly tested in this environment. These instruments could be viewed as a “bonus” part of the package, and should be used at one’s own risk. Steinberg will not officially offer support for these older plugins under OS X.

JX16 Synthesizer



The JX16 is a dual oscillator software synthesizer with the following main features:

- The JX16 is polyphonic with up to 16 voices.
The polyphony setting for each patch is user programmable.
- Low CPU load and high quality sound (low aliasing distortion).
- Multimode Filter.
Lowpass, Bandpass and Hipass filter modes are available.
- Oscillator Lock function enables the creation of pulse and square waveforms with classic PWM (Pulse Width Modulation).
See [page 12](#).
- Built-in stereo chorus effect.
- The JX16 receives MIDI in Omni mode (on all MIDI channels).
You don't need to select a MIDI channel to direct MIDI to the JX16.
- The JX16 responds to MIDI Controller messages.
See [page 13](#).

☐ All parameters can be automated as described in the Operation Manual.

JX16 Parameters

Osc 1+2 Section



This section contains parameters affecting both oscillators.

Parameter	Values	Description
Octave	-2/+2	Tunes the oscillators in octave steps.
Fine Tune	-100/+100 Cent	Tunes the oscillators in cent (100th of a semitone) steps.
Vibrato	0-100	Governs how much the LFO should modulate the pitch of the oscillators (vibrato). The Vibrato parameter is also controllable via MIDI by using the Mod Wheel.
Noise	0-100	This parameter produces white noise mixed with the oscillators. By using the “OSC lock” parameter you can “cancel out” the oscillators and use pure noise as the sound source. This is described on page 12 .
OSC lock	0-95/Free	See page 12 .

The Oscillator 2 Section



This section contains parameters that affect oscillator 2 only.

Parameter	Values	Description
OSC Mix	0-100	Controls the level of oscillator 2. 100 produces equal level to oscillator 1, which has a fixed output level.
Coarse	-24/+24 Semitones	Tuning of Oscillator 2, in semitone steps.
Fine Tune	-50/+50 Cent	Fine tuning of Oscillator 2, in cent (=100th of a semitone) steps.
Vibrato	-100/100	This lets you apply vibrato on the second oscillator only. This can be useful for creating PWM effects - see page 12 for a further description. Both positive and negative values can be set.

The Glide/Chorus Section



This section contains Glide parameters, and also the Polyphony and Chorus parameters.

Parameter	Values	Description
Mode	Off/Held/On	If set to “On”, the pitch will glide up or down between notes played. If set to “Held”, Glide will only be applied when you press a key while another key is held.
Rate	0-100	Controls the time it takes for the pitch to glide from one note to the next when using Glide. If Bend (see below) is used, this parameter controls the time it takes for the pitch bend to “land” at the correct pitch.
Bend	-36/+36 Semitones	Applies an initial pitch bend to the notes played. Negative values causes the pitch to slide up to the pitch of the note played, and vice versa.
Polyphony	1 to 16	This sets the polyphony, i.e. the number of voices a patch can use.
Chorus	OFF/I/II/III/IV	This adds a stereo chorus effect. The values set different modulation rates and depths for the effect.

The LFO Section



This section contains the LFO (Low Frequency Oscillator) parameters. LFOs are used to modulate parameters like pitch (vibrato) or the filter cutoff.

Parameter	Values	Description
LFO Wave	Sine/Square/ Saw+ /Saw-/ Random	This sets the LFO waveform for modulating parameters: Sine produces smooth modulation suitable for vibrato, Square produces stepped modulation between two alternating values, Saw+/- produces ramp up/down values respectively, and Random will produce random stepped modulation.
LFO Sync	On/Off	If this is activated, the LFO rate will be synced to the sequencer tempo in various beat divisions that can be set with the LFO Rate parameter.
LFO Rate	0.018-54.598 Hz	Governs the modulation rate of the LFO.
LFO Rate (tempo sync on)	8 to 1/8 Beats 1 Beat=1/4 note	If the "LFO Sync" parameter is activated, the LFO rate will be synced to the sequencer tempo, according to the different beat divisions that can be specified here.
LFO Velocity	0-100	This allows you to control the LFO Rate parameter with velocity, i.e. by how hard or soft you strike a note on the keyboard. The harder you play the faster the LFO rate.

The VCF Section

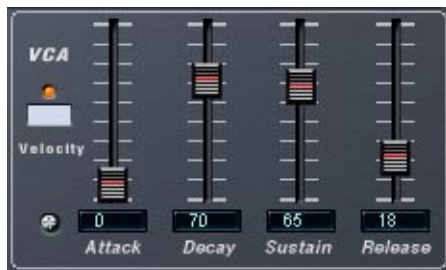


This section contains the filter parameters:

Parameter	Values	Description
VCF Mode	LP/HP/BP/Off	Sets the filter mode to either lowpass (LP), highpass (HP), bandpass (BP) or off. The filter modes are described on page 13 .
VCF Freq (Cutoff)	0-100	Controls the filter frequency or “cutoff”. If a lowpass filter is used, it could be said to control the opening and closing of the filter, producing the classic “sweeping” synthesizer sound. How this parameter operates is governed by the filter mode (see page 13).
Resonance	0-100	The Resonance control for the filter. Raise this for a more pronounced filter sweep effect. If set to 100, the filter will self-oscillate and produce a pitch. See the “VCF Key” parameter below for a description of how this can be used.
VCF Env	-100/+100	Controls how much the filter cutoff should be affected by the VCF Envelope parameters. Negative values will invert the filter envelope settings.

VCF Vel	-100/+100	Determines how the filter cutoff will be affected by velocity, i.e. how hard or soft you strike a key. Positive values will increase the cutoff frequency the harder you strike a key. Negative values will invert this relationship.
VCF Att/Dec/Sus/Rel	0-100	The Filter Envelope Attack, Decay, Sustain and Release parameters. Use these parameters to determine how the filter cutoff should open and close with time, when a note is played.
VCF LFO	0-100	This controls how much the filter cutoff is modulated by the LFO (low frequency oscillator).
VCF Key	0-100	If this parameter is set to values over 0, the filter cutoff frequency will increase the further up on the keyboard you play. If set to 100, it will track the notes on the keyboard, enabling you to "play" the filter as an extra sound source, as the filter self-oscillates and produces a pitch when the resonance is set to 100.
VCF Touch	-100/+100	This sets the amount the VCF cutoff parameter should be affected by Aftertouch. If positive values are set, the filter cutoff is raised the harder you press. Negative values invert this relationship.
LFO Touch	-100/+100	This sets the amount the VCF LFO parameter should be affected by Aftertouch. If positive values are set, the modulation increases the harder you press. Negative values invert this relationship.

The VCA Section



This section contains the VCA Envelope parameters:

Parameter	Values	Description
VCA Att/Dec/Sus/Rel	0-100	The VCA Attack, Decay, Sustain and Release parameters. Use these parameters to determine how the volume should change with time, when a note is played.
VCA Velocity	On/Off	This determines whether the VCA Envelope should be affected by velocity, i.e. by how hard or soft you strike a note on the keyboard.

About the “Oscillator Lock” parameter

JX16 features two oscillators per voice, with fixed sawtooth waveforms. You can, however, generate square waves and PWM (pulse width modulation) with the JX16, by combining the two oscillators using the “OSC lock” and Oscillator 2 “Vibrato” parameters. The following applies:

- “OSC lock” allows the phase of Oscillator 2 to be fixed relative to OSC 1, producing pulse waves when Oscillator 2 has the same pitch and level as OSC 1.
- If the oscillators are tuned to the same pitch and level, an “OSC lock” setting of 50% produces a square wave with higher and lower settings producing progressively narrower pulse waveforms.
With an “OSC lock” setting of 0% the two oscillators cancel out completely, which is useful if you only want to use the noise generator as a sound source.
- By applying the Oscillator 2 “Vibrato” parameter when OSC lock is set to around 50%, classic PWM is produced.
You can also detune Oscillator 2 for even richer modulation effects.
- In “Free” mode the oscillator phase is allowed to drift, producing a random timbre change.

By experimenting with these parameters, many different timbres and modulation effects can be produced.

About the filter modes

The JX16 features a multimode filter. The various filter modes are selected with the VCF Mode parameter, and are as follows:

- **Lowpass (LP)**
Lowpass filters lets low frequencies pass and cuts out the high frequencies. This is the most commonly used filter type in analog synthesizers.
- **Bandpass (BP)**
A bandpass filter cuts frequencies above and below the cutoff frequency, allowing a specific range of frequencies to pass while attenuating all others.
- **Highpass (HP)**
A highpass filter is the opposite of a lowpass filter, cutting out the lower frequencies and letting the high frequencies pass.

MIDI Controller Messages

The JX16 responds to the following MIDI Controller Messages:

Controller	Parameter/Value
Pitch Bend	+/- 2 Semitones
CC1 (Mod Wheel)	Vibrato
Aftertouch	Can control filter cutoff and filter cutoff modulation (by the VCF LFO).
CC2	Increase filter cutoff
CC3	Decrease filter cutoff
CC7	Volume
CC16	Increase filter resonance
Program Change #	1-64

CS40



The CS40 is a straightforward software synthesizer with the following main features:

- The CS40 is polyphonic with up to 6 voices.
- The CS40 receives MIDI in Omni mode (on all MIDI channels).
You don't need to select a MIDI channel to direct MIDI to the CS40.
- The CS40 responds to the following MIDI messages:
MIDI Note On/Off (velocity governs volume).
Volume.
Pan.
Pitch Bend (± 2 semitones).
Modulation (vibrato).

CS40 Parameters:

Parameter	Description
Oscillator 1 Range	Selects an octave range for oscillator 1; 32, 16, 8 or 4 feet.
Oscillator 1 Waveform	The basic waveform for oscillator 1; Triangle, Sawtooth, Square or Pulse.
Oscillator 1 Tune	Detunes Oscillator 1 ± 7 semitones.
Oscillator 2 parameters	Same as Oscillator 1.
Oscillator Blend	Adjusts the relative volume mix between oscillator 1 and 2.
LFO Speed	Governs the speed of the LFO. If LFO Sync is activated, this parameter sets the LFO speed in various beat increments to the sequencer tempo.
LFO Sync	Syncs the LFO speed to the set sequencer tempo.
LFO Amount	This governs the amount of LFO modulation applied to the destination parameters.
LFO Destination	This sets the destination parameter(s) for the LFO. You can apply modulation to the VCF cutoff frequency, the VCA amplitude, or both.
Vibrato Speed	Governs the speed of the Vibrato LFO. The Vibrato amount is controlled by the Mod Wheel.
VCF Cutoff	The Cutoff Frequency for the filter, governing the amount of high frequencies in the sound.
VCF Resonance	The Resonance control for the filter. Raise this for a more hollow, pronounced filter effect.
Filter Mod ADSR	This controls how much the VCF cutoff is affected by the VCF Envelope. Negative values invert the Envelope settings.
VCF Attack, Decay, Sustain, Release	The Filter Envelope. Use these parameters to determine how the filter should open and close with time, when a note is played.
VCA Attack, Decay, Sustain, Release	The Amplitude Envelope. Use these parameters to determine how the volume should open and close with time, when a note is played.
MonoMode	When activated the CS40 will be monophonic.
Volume	Governs the overall volume.

The Neon



The Neon is a simple software synthesizer. It has the following properties:

- The Neon is polyphonic with up to 16 voices.
However, since each added voice consumes CPU power, the maximum polyphony may be limited by the speed of your computer.
- The Neon receives MIDI in Omni mode (on all MIDI channels).
You don't need to select a MIDI channel to direct MIDI to the Neon.
- The Neon responds to the following MIDI messages:
MIDI Note On/Off (velocity governs volume).
Volume.
Pan (remember to pan the two Instrument channels hard Left/Right if you want to use MIDI Pan messages).
Pitch Bend (± 2 semitones).
Modulation (vibrato).


Neon Parameters:

Parameter	Description
Range	Selects an octave range for the oscillators, 16, 8 or 4 feet.
Waveform	The basic waveform for the oscillators, Triangle, Sawtooth or Square.
LFO Speed	Governs the speed of the vibrato. The vibrato depth is controlled via MIDI Modulation messages (for example, using the Mod Wheel on your MIDI controller).
Osc 2 Detune	Allows you to detune the “second oscillator” ± 7 semitones. By setting this to a value close to “twelve o'clock”, you will get fine detuning, for a warmer, fatter sound.
VCF Cutoff	The Cutoff Frequency for the filter, governing the amount of high frequencies in the sound. On the Neon, the Cutoff control also serves as a Depth control for the Filter Envelope (VCF Attack, Decay, Sustain, Release), so that the lower the setting of the Cutoff parameter, the more will the filter be affected by the Filter Envelope.
VCF Resonance	The Resonance control for the filter. Raise this for a more hollow, pronounced filter effect.
VCF Attack, Decay, Sustain, Release	The Filter Envelope. Use these parameters to determine how the filter should open and close with time, when a note is played.
VCA Attack, Decay, Sustain, Release	The Amplitude Envelope. Use these parameters to determine how the amplitude (volume) should change with time, when a note is played.

LM-9

Volume fader (one for each drum sound).

This sets the global velocity sensitivity for LM-9.



Pad (one for each drum sound). Click to audition the drum sound assigned to the Pad, or to select a sound for adjusting pan.

This adjusts the Pan (the position in the stereo image) for the individual drums. The setting is applied to the currently selected drum, indicated by a lit yellow LED over the Pad button.

The LM-9 is a basic drum machine. It has the following properties:

- LM-9 is polyphonic with up to 9 voices.
- LM-9 receives MIDI in Omni mode (on all MIDI channels).
You don't need to select a MIDI channel to direct MIDI to LM-9.
- LM-9 responds to the following MIDI messages:
MIDI Note On/Off (velocity governs volume).

Furthermore, all parameters can be automated as described in the Operation Manual.

LM-9 Parameters:

Parameter	Description
Velocity	This sets the global velocity sensitivity for LM-9. The higher the value, the more sensitive LM-9 will be to incoming velocity data. If set to "0", the sounds will play back with a fixed velocity value.
Volume sliders	The volume sliders are used to adjust the volume for each individual drum sound.
Pad	The Pads are used for two things: To audition the individual drum sounds and to select a sound for adjusting pan.
Panorama	This is used to position an individual sound in the stereo image. The setting applies to the currently selected sound, indicated by a lit yellow LED over the Pad button.

Drum sounds

LM-9 comes with two sets of drum sounds: "Acoustic" and "Beat Box". Acoustic features samples of an acoustic drum kit and Beat Box features classic analog drum machine sounds.

- Use the Program button to switch between the two supplied drum sets, just like you switch between effect programs.

The table below shows how the drum sounds are assigned to note values on your MIDI keyboard. The mapping is GM compatible:

Drum sound	Note value
Bass	C1
Snare	D1
Hi-Hat	F#1
O-Hi-Hat	A#1
Tom 1	D2
Tom 2	B1
Tom 3	A1
Crash	C#2
Ride	D#2

